

# PATENT ABSTRACTS OF JAPAN

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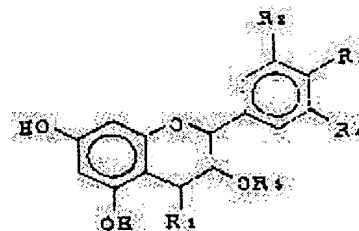
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## (54) PRODUCTION OF PROANTHOCYANIDIN

### (57)Abstract:

**PURPOSE:** To easily obtain the titled substance useful as antioxidant, raw material for pharmaceuticals, etc., from a proanthocyanidin-containing liquid in high yield, by using a PS resin as an adsorbent resin and eluting the adsorbed component with a polar solvent at a specific temperature.

**CONSTITUTION:** A liquid containing proanthocyanidin [e.g. a 2W10-mer containing the nit of formula (R1 is H or OH; R2WR4 are H, OH, methoxy, etc.; R5 is H, galloyl or glycopyranosyl) as a constituent unit] which is obtained generally by the extraction of various vegetables with an aqueous medium is adsorbed to a PS resin. The resin is washed with a polar solvent at  $\leq 50^{\circ}\text{C}$  (usually at  $0\text{W}50^{\circ}\text{C}$ ) and then the adsorbed component is eluted with a polar solvent at  $\geq 60^{\circ}\text{C}$  (preferably at  $80\text{W}150^{\circ}\text{C}$ ) to obtain the objective proanthocyanidin. The polar solvent used in the above processes is preferably water or a mixture of water and 20% ethanol, methanol, propanol, etc.



## LEGAL STATUS

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Applicant: KIKKOMAN CORPORATION

Inventors: Toshiaki Ariga et al.

Title of the Invention:

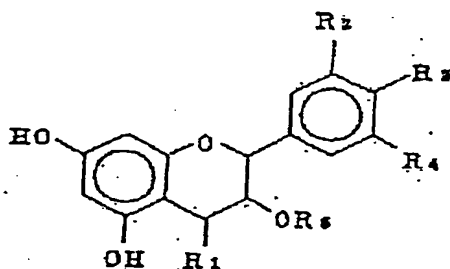
Method for producing proanthocyanidins

Claim:

1. A method for producing proanthocyanidins comprising,  
treating a proanthocyanidin-containing liquid with a polystyrene resin;  
washing the polystyrene type resin with a polar solvent at 50°C or less; and  
eluting the proanthocyanidins with the use of a polar solvent at 60°C or more.

Page 2, upper right column, line 3 to lower left column, line 15

Therefore, examples of the proanthocyanidins include procyanidins, prodelfinidins, and propelargonidins that have a degree of polymerization of 2 to 4, or 10 or more, and stereoisomers thereof. The proanthocyanidins are dimer to decamer having flavan-3-ol or flavan-3,4-diol shown by the following general formula as a constituent unit



(wherein  $R_1$  is a hydrogen atom or a hydroxyl group, each of  $R_2$ ,  $R_3$ , and  $R_4$  is a hydrogen atom, a hydroxyl group, or a methoxy group, and  $R_5$  is a hydrogen atom, a galloyl group, or a glycopyranosyl group).

As the proanthocyanidin-containing liquid used for the present invention, any liquid that contains proanthocyanidins can be employed. Examples of the proanthocyanidin-containing liquid include a water extract liquid of fruits such as apple, grape, persimmon, cranberry, or the like; a bean immersed water obtained from beans such as adzuki bean, black soybean, or the like; an aqueous alcohol extract liquid of medicinal herb such as a rhubarb, an ephedra, myrica cortex, or the like; or an aqueous alcohol based reaction mixture for synthesizing proanthocyanidins.

Preferable examples of the polystyrene resin used as the adsorption resin include DIAION HP20, DIAION HP21, DIAION SP206, DIAION SP207, DIAION CHP3C, DIAION CHP5C, and DIAION CHP20P (manufactured by Mitsubishi Chemical Corporation), Amberlite XAD-1, Amberlite XAD-2, and Amberlite XAD-4 (manufactured by ORGANO CORPORATION), and the like.

Page 3, upper left column, lines 6 to 8

According to the present invention, the high-purity proanthocyanidins can be obtained in a high yield by a simple procedure. Therefore, the present invention is remarkably useful for industry.